

## 2009 NIST Summer Institute for Middle School Teachers

date/time location	Monday, July 6 Lecture Rm A	Tuesday, July 7 Lecture Rm A	Wednesday, July 8 Lecture Rm A	Thursday, July 9 Lecture Rm A	Friday, July 10 Lecture Rm A	Monday, July 13 NCNR	Tuesday, July 14 Lecture Rm A	Wednesday, July 15 Lecture Rm A	Thursday, July 16 Lecture Rm A	Friday, July 17 Lecture Rm A
9-10	<b>Orientation</b> -NIST Overview Susan Heller-Zeisler (9-9:45)	9AM: walk down to basement together <b>Metrology 2: Mechanical Metrology</b> -Metrics Jeopardy Elizabeth Gentry (101/B11, 9:05-10:15)	Bring your laptop!  *LabQuests, probes, lab manuals, software distributed (LRB, 9-9:30) -goals of day: try out LabQuests and probes using <u>Middle School Lab Manual</u> -groups by grade level taught (9-12)	<b>Separations 2: Solving Crimes with Science</b> -Lecture by Janelle Newman (9-10)  <b>-Forensic Science Classroom Experiments</b> Janelle Newman and Jocelyn Prendergast (10-11)	<b>Materials Science: -pH of Water</b> Ken Pratt (9-10:30)	meet at the NCNR - see map	<b>Building Science: Designing Bldgs to Resist Earthquakes</b> Dat Duthinh (9-11:30)	meet in foyer of Admin Bldg at 9AM <b>Metrology 4: Thermometry</b> Lecture by Greg Strouse (9:15-9:45) 221/A366 Thermometry activities with Dawn Cross, Wyatt Miller, and Karen Garrity (9:45-10:45) Bring LabQuests, thermometer and conductivity probes	Meet behind bldg 202 at 9AM  <b>Materials Sci 2/ Engineering: Walking Tour of WTC Structural Steel</b> Steve Banovic (9-10)	All SI participants, current and past, invited
10-11	<b>Workshop Overview</b> -Who we are as a group -Safety/Ethics Mary Satterfield (9:45-10:45)	<b>-Weights and Measures Overview</b> Georgia Harris Tina Butcher and Elizabeth Gentry (10:30-12)	<b>Bioreactor Set-Up</b> 11AM  Visit to SEBA, NIST Store 11:55	<b>-Cement Activity</b> Clarissa Ferraris (226/B165, 11-12)	10:45 walk together to Bldg 226	<b>Separations 3: The NIST Center for Neutron Research (NCNR)</b> <b>Production of Neutrons</b> Juscelino Leao	<b>Picture under Newton Apple Tree</b> Denease Anderson 11:45	Walk to Bldg 202 <b>Tour of Million Pound Force Machine</b> Sam Ho (11-11:45)	<b>Experiment Design</b> Jim Filliben (10:15-12N)	<b>Separations 4: Bioreactors</b> Teresa Petralli-Mallow, Adolfas Gaigalas (9-10)
11-12	<b>NIST in Your Community</b> Gail Porter/ <b>Museum Tour</b> Keith Martin (11-12N, alternating)			<b>-DNA Extraction Activity</b> Mary Satterfield (11-12)		<b>Crystal Growth Lab</b>  <b>Tour Part I</b>  (NCNR, 9-12)				Walk to Bldg 227 <b>Tour of Bioreactor Project</b> (10:15-11)  Westat Evaluation (11-11:45)
lunch	lunch	lunch/Farmers Mkt	lunch	lunch with SURF students/West Wing	lunch	lunch with SURF students at NCNR	lunch with NIST folks/West Wing	lunch	lunch	group lunch out
1-2	<b>Metrology 1: Measurement Uncertainty How Big is Pi?</b> Dennis Leber and Hung-Kung Liu (1-2:30)	<b>Separations 1: Spectrometry</b> Lecture and Activity Steve Choquette (1-3)	Sharing of labs tested in the morning among groups (1-2:45)	Meet at 1pm for walk over to Bldg 227 <b>-Gel Electrophoresis</b> Margaret Kline/ <b>Human ID Group Tour</b> Amy Decker (227/B225 and B261, 1:15-2:45 alternating)	<b>Scientist Visits</b> one-on-one (1-2)  <b>Implementation into curriculum:</b> gel electrophoresis trials (2-3)	<b>Diffraction Demos</b> Juscelino Leao	<b>Metrology 3: Sampling Activity</b> Dennis Leber and Hung-kung Liu (1-2)	<b>Scientist Visits</b> one-on-one (1-2)	<b>SURF Student Panel Discussion</b> (1-2)	all current and past SI participants invited
2-3		walk to Bldg 227 <b>Tour of HASI</b> John Travis (3:15-4)		Implementation into curriculum (3-3:30)	<b>Separations 3: -Ink Identification with Thin Layer Chromotography (TLC)</b> Bill MacCrehan (3-4)	<b>Tour Part II</b> NCNR Staff	<b>Technology in the Classroom</b> Mike Epstein (2-4)	<b>The Earth 1: -Solar system scale model activity</b> Richard Steiner (2-3)	<b>Types of Magnetism</b> Bob Shull (2-3:15)	<b>Greg Linteris, NIST Astronaut</b> (1:30-2:45)
3-4	<b>Summer Institute Wiki, Twittering, Facebook</b> Allan Eustis (3-4)		<b>Physics: Aerodynamics of Paper Airplanes</b> Chandler Becker (3-4)	<b>SURF Seminar "Time, Einstein, and the Coldest Stuff in the Universe"</b> Bill Phillips	NOTE: We meet at the NCNR Monday morning.	<b>Crystal Growing!</b>		<b>Using NIST-based Activities in the Classroom</b> Lindsay Amos (3-4)	<b>SURF Seminar "Cancer Therapy with Magnetism"</b> (3:30-4:30)	<b>Final Reception</b> Reception with all participating NIST staff invited (3-4)